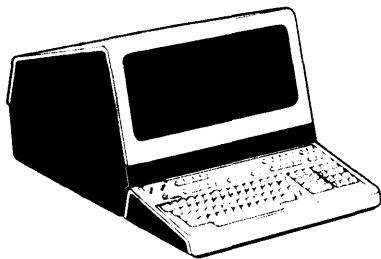


HP 13255
POWER SUPPLY MODULE
Manual Part No. 13255-91203
REVISED
JAN-5-79

DATA TERMINAL TECHNICAL INFORMATION



HEWLETT  PACKARD

1.0 INTRODUCTION.

The Power Supply Module generates the following required voltages for the 264XX Data Terminal product line: +5 volts at 12 amperes, +12 volts at 1.75 amperes, -12 volts at 1.75 amperes, and -42 volts at 0.6 amperes. Either one of the 12-volt supplies may be loaded to 3 amperes continuously, as long as the other 12-volt supply current is reduced so that the total current from both supplies does not exceed 3.5 amperes. The maximum total power of all voltage outputs must not exceed 125 Watts.

2.0 OPERATING PARAMETERS.

A summary of operating parameters for the Power Supply Module is contained in tables 1.0 through 3.1.

Table 1.0 Physical Parameters

Part Number	Nomenclature	Size (L x W x D) +/-0.100 Inches	Weight (Pounds)
02640-60169	Power Supply Control PCA	3.9 x 3.6 x 1.0	0.3
02640-60202	Power Supply PCA	15.3 x 6.4 x 4.5	8.0
02640-60203	Power Supply Assembly	N/A	N/A
02640-60148	Cable Assembly	N/A	N/A
Number of Backplane Slots Required: NOT APPLICABLE			

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POWER SUPPLY MODULE
Manual Part No. 13255-91203
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NOTTCE

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NOTE: This document is part of the 264XX DATA TERMINAL product series Technical Information Package (HP 13255).

1.0 INTRODUCTION.

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02640-60203	Power Supply Assembly	N/A	N/A
02640-60148	Cable Assembly	N/A	N/A
Number of Backplane Slots Required: NOT APPLICABLE			

Table 2.0 Reliability and Environmental Information

=====
| Environmental: (X) HP Class B () Other:
|
| Restrictions: Type tested at product level
|
=====

| Failure Rate: 1.552 (percent per 1000 hours)
|
=====

Table 3.0 Connector Information - Power Supply PCA

Connector and Pin No.	Signal Name	Signal Description
J1, Pin -1		Not Used
-2	+5V	{
-3	+5V	{
-4	+5V	{
-5	+5V	{
-6	GND	{
-7	GND	{ Power Connection
-8	GND	{ To Backplane
-9	GND	{
-10	+12V	{
-11	+12V	{
-12	-12V	{
-13	-12V	{
-14		{ Not
-15		{ Used
J2, Pin -1	GND	Ground
-2	GND	Ground
-3	+5V	Sense Line From Backplane +5V Output
Pin -4 through Pin -6		{
		{ Not Used
		{
-7	+5C	{
-8	+5C	{
-9	+5C	{ Power Supply Which Runs
-10	+5C	{ Main Supply Logic
-11	+5C	{
-12	SENSE RETURN	Sense Line From Primary Current Measuring Transformer
-13		{ Not
-14		{ Used
-15	CURRENT SENSE	Sense Line From Primary Current Measuring Transformer

Table 3.0 Connector Information - Power Supply PCA (Cont'd.)

Connector and Pin No.	Signal Name	Signal Description
J2, Pin -A	+16V	Unregulated Power From Auxillary Supply
Pin -B through Pin -F		{ Not Used
-H	+5C	Power Supply Which Runs Main Supply Logic
-J		{
-K		{ Not Used
-L		{
-M	-42V	{ Power Supply Outputs
-N	-12V	{ Used for Test Purposes
-P	+12V	{
-R	BASE DRIVE 1	{ Outputs Which Run Main
-S	BASE DRIVE 2	{ Supply Transistors
<hr/>		
J3, Pin -1	-42V	{ Power Connection to
-2	+5V	{ Sweep Cable Assembly
-3		Not Used
-4	+12V	{ Power Connection to
-5	GND	{ Sweep Cable Assembly
<hr/>		
J4, Pin -1	115V	{
-2	NEUTRAL	{ Connection to
-3	GND	{ Line
-4	LINE	{
<hr/>		
J5, Pin -1	115V	{
-2	NEUTRAL	{ Power Connection To
-3	GND	{ Auxilliary Cable Assembly
-4	LNF	{

Table 3.1 Connector Information - Power Supply Control PCA

Connector and Pin No.	Signal Name	Signal Description
J1, Pin -1	-42V	{ To Backplane
-2	PWR ON	{ To Backplane
-3	BASE DRIVE 1	{ Backplane
-4	BASE DRIVE 2	{ Backplane
-5		Not Used
-6	+16V	{ To Backplane
-7	+5C	{ To Backplane
-8	SYS CLK	{ GND
-9		{ Not Used
-10		{ Not Used
P1, Pin -1	GND	{ To Power Supply PCA
-2	GND	{ To Power Supply PCA
-3	+5V	{ To Power Supply PCA
Pin -4 through Pin -6		Not Used
-7	+5C	{ To Power Supply PCA
Pin -8 through -11		Not Used
Pin -11		{ To Power Supply PCA
-12	SENSE RETURN	{ To Power Supply PCA
-13	SYS CLK	{ To Power Supply PCA
-14	PWR ON	{ To Power Supply PCA
-15	CURRENT SENSE	{ To Power Supply PCA

Table 3.1 Connector Information - Power Supply Control PCA (Cont'd.)

Connector and Pin No.	Signal Name	Signal Description
P1, Pin -A	+16V	To Power Supply PCA
Pin -B through Pin -L		} Not Used
-M	-42V	To Power Supply PCA
-N		} Not Used
-P		}
-R	BASE DRIVE 1	}
-S	BASE DRIVE 2	} To Power Supply PCA

3.0 FUNCTIONAL DESCRIPTION. Refer to the module block diagram (figure 1), schematic diagrams (figures 2 and 3), timing diagram (figure 4), component location diagrams (figures 5 and 6), and parts lists (02640-60169, 02640-60202, 02640-60203, and 02640-60148) located in the appendix.

As shown in the block diagram, the Power Supply Module consists of two printed-circuit assemblies, the Power Supply PCA and the Power Supply Control PCA.

3.1 POWER SUPPLY PCA.

The Power Supply PCA contains all of the high-level electronics of the power supply. This assembly connects to the power line and supplies power to the terminal data bus and Sweep Module.

3.1.1 Line Rectifier.

The line rectifier block connects to the power line and rectifies and filters the incoming ac power. The line voltage select switching is done by fuse location and configures the rectifier either as a voltage doubler (115-volt operation) or as a bridge rectifier (230-volt operation).

3.1.2 Logic Power Supply.

The logic power supply block also connects directly to the power line. Its function is to provide power to the Power Supply Control PCA and driver transistors in the chopper block. The logic power supply has two outputs, +16 volts unregulated and +5 volts regulated (+5C).

3.1.3 Chopper.

The chopper block contains two power transistors (Q3,Q4) in the primary circuitry and two driver transistors (Q1,Q2). The driver transistors are driven by alternating pulses which come from the Power Supply Control PCA. The function of the chopper block is to chop the dc output from the line rectifier block and apply the chopped signal to the power supply main transformer (T2). The basic power supply regulation takes place during this chopping operation as the average output voltage is proportional to the width of the pulses applied to the chopper. Current sensing takes place in this block and is applied to a current limit circuit on the Power Supply Control PCA.

3.1.4 Choke Input Power Supplies.

This block contains four independent choke input power supplies. In each, the pulse output of the power transformer is rectified and applied to a filter choke and then to a filter capacitor. The output voltages are as shown on the block diagram in figure 1. Note that only the +5 volt supply is sensed and regulated by the Power Supply Control PCA. The other voltages track the sensed supply and are kept within their accuracy tolerances without actually being sensed and regulated independently.

3.2 POWER SUPPLY CONTROL PCA.

The Power Supply Control PCA contains the low-level logic of the power supply. It generates the System Clock (SYS CLK) signal, senses and regulates the +5 volt power supply output, limits the power supply primary current, and shuts down the supply if the power line voltage drops below the minimum line voltage specification (88.5 V).

3.2.1 Low Line Detector.

The low line detector senses the power line voltage by sensing the +16 volt supply which is proportional to the line voltage. If this voltage drops below +11 volts (line voltage of 88 volts) the low line detector shuts off the circuit that drives the chopper on the Power Supply PCA and therefore shuts down the power supply.

3.2.2 Current Limit.

The current limit block senses primary current of the main power transformer and shuts off the chopper if the current becomes excessive. Both the current limit and low line detector use a timer in this block which attempts to restart the power supply once per second so that the power supply will restart itself if the fault condition is corrected.

3.2.3 Base Drive Steering.

This block takes the output pulses from the voltage variable one-shot and causes them to alternate between the two drive lines which go to the chopper. These signals cause the chopper transistors to be alternately turned on. The base drive steering circuit is also designed to

guarantee that both the chopper transistors can never be turned on at the same time, and in fact, guarantees a delay of 2 microseconds between one turning off and the next one turning on.

3.2.4 Voltage Variable One-Shot.

This block accepts the error correction voltage from the regulator block and outputs a pulse which varies from about 5 microseconds to 18 microseconds depending on the value of the correction voltage. The repetition rate of the pulse is 50 kHz and is triggered by the output of the divide-by-100 block.

3.2.5 Regulator.

This block senses the +5 volt supply on the Power Supply PCA and generates a correction voltage which is applied to the voltage variable one-shot block. The control which adjusts the output voltage of the supply is located in this block.

3.2.6 Power On Reset.

The Power On (PWR ON) signal is a logic line that is held low until about 400 milliseconds after the +5 volt supply comes up. Power on reset will occur whenever the +5 volt supply goes low and then recovers (e.g., after a current limit condition).

3.2.7 4.915 MHz Oscillator.

The 4.915 MHz oscillator is a crystal oscillator which generates the System Clock (SYS CLK) signal that is buffered by a driver gate and applied to the logic bus.

3.2.8 Divide-By-100 Counter.

This block divides the System Clock signal by 100 in order to make a usable clock rate for the power supply.

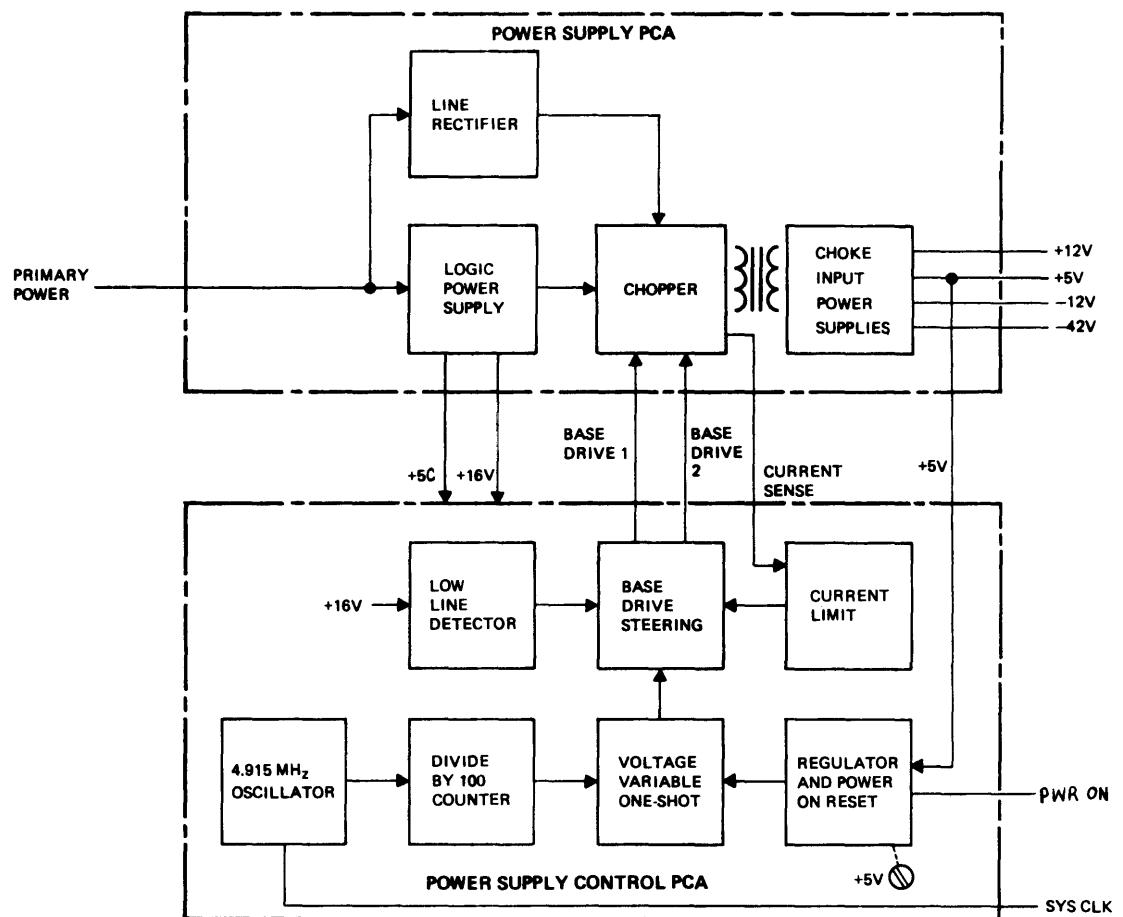


Figure 1
Power Supply Module Block Diagram
JAN-5-79
13255-91203

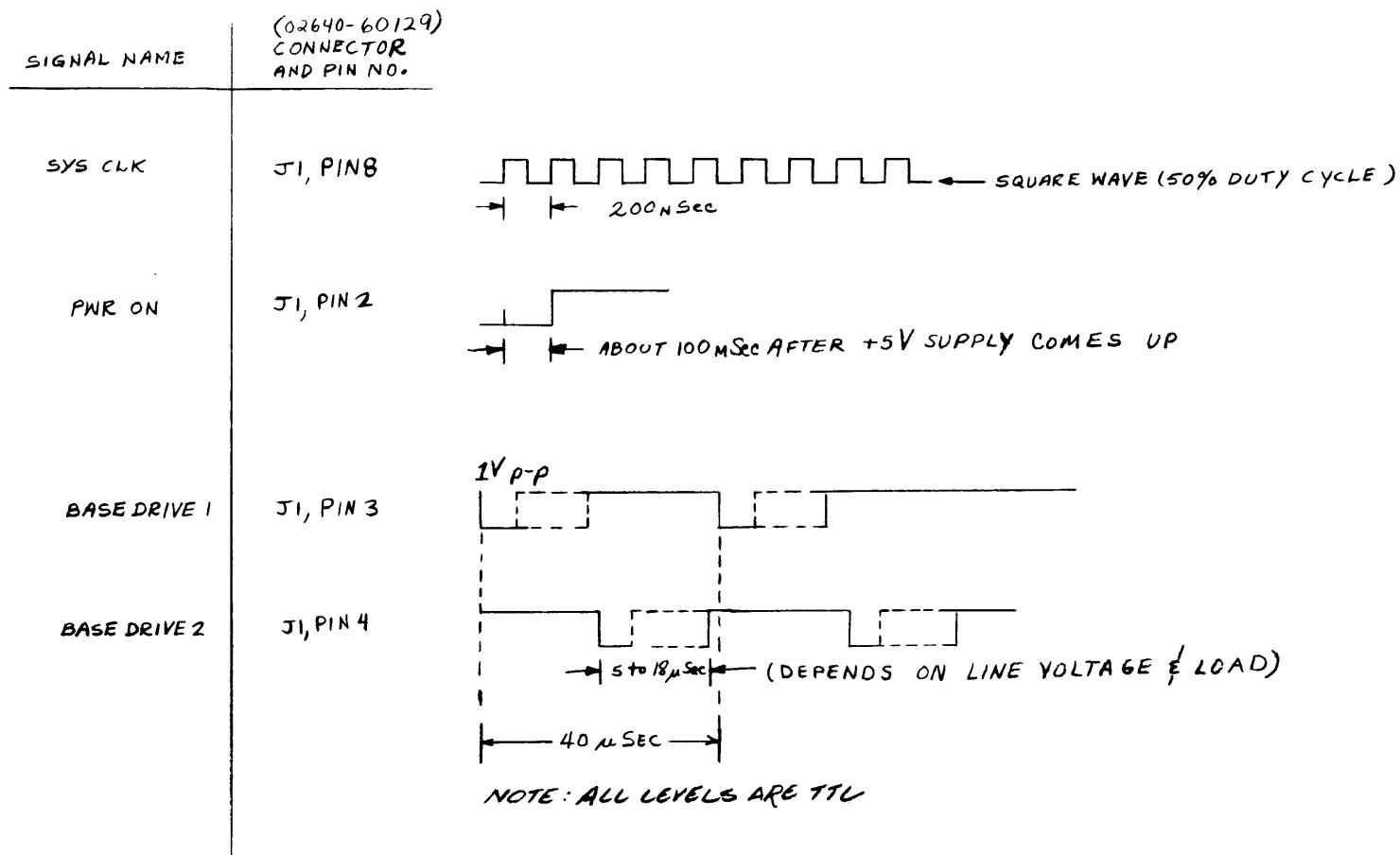


Figure 4
Power Supply Timing Diagram
JAN-5-79 13255-91203

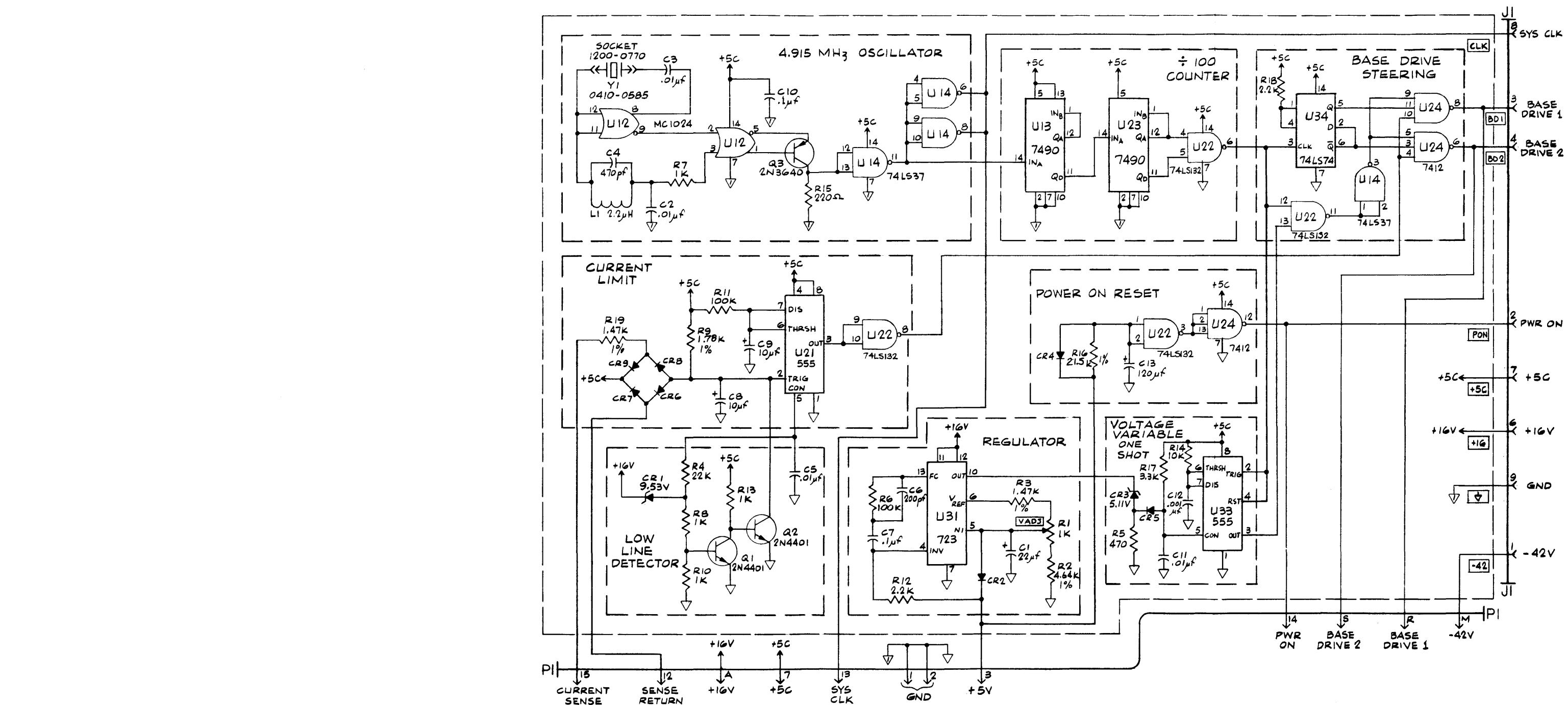


Figure 2
Power Supply Control PCA Schematic Diagram
JAN-5-79
13255-91203

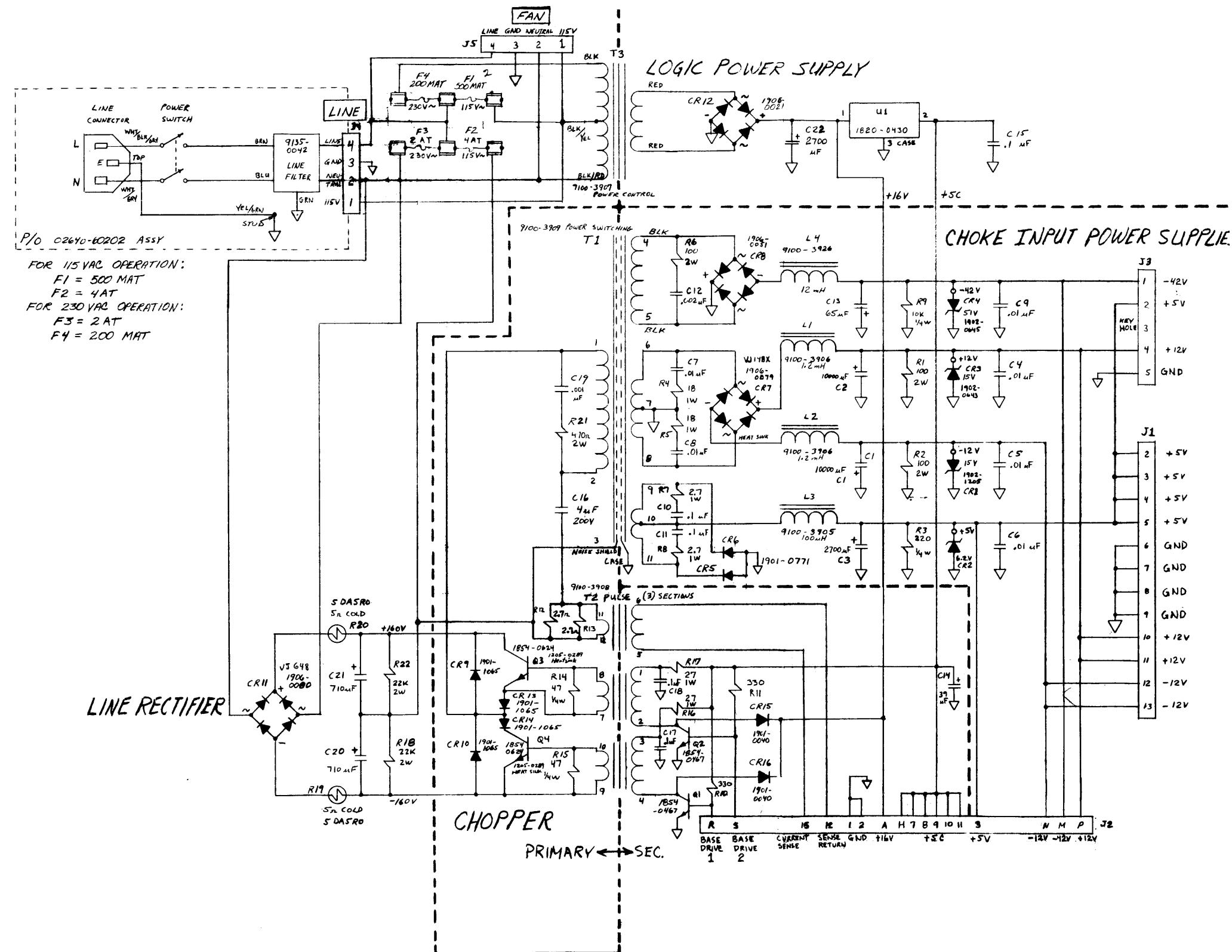


Figure 3
Power Supply PCA Schematic Diagram
JAN-5-79 **13255-91203**

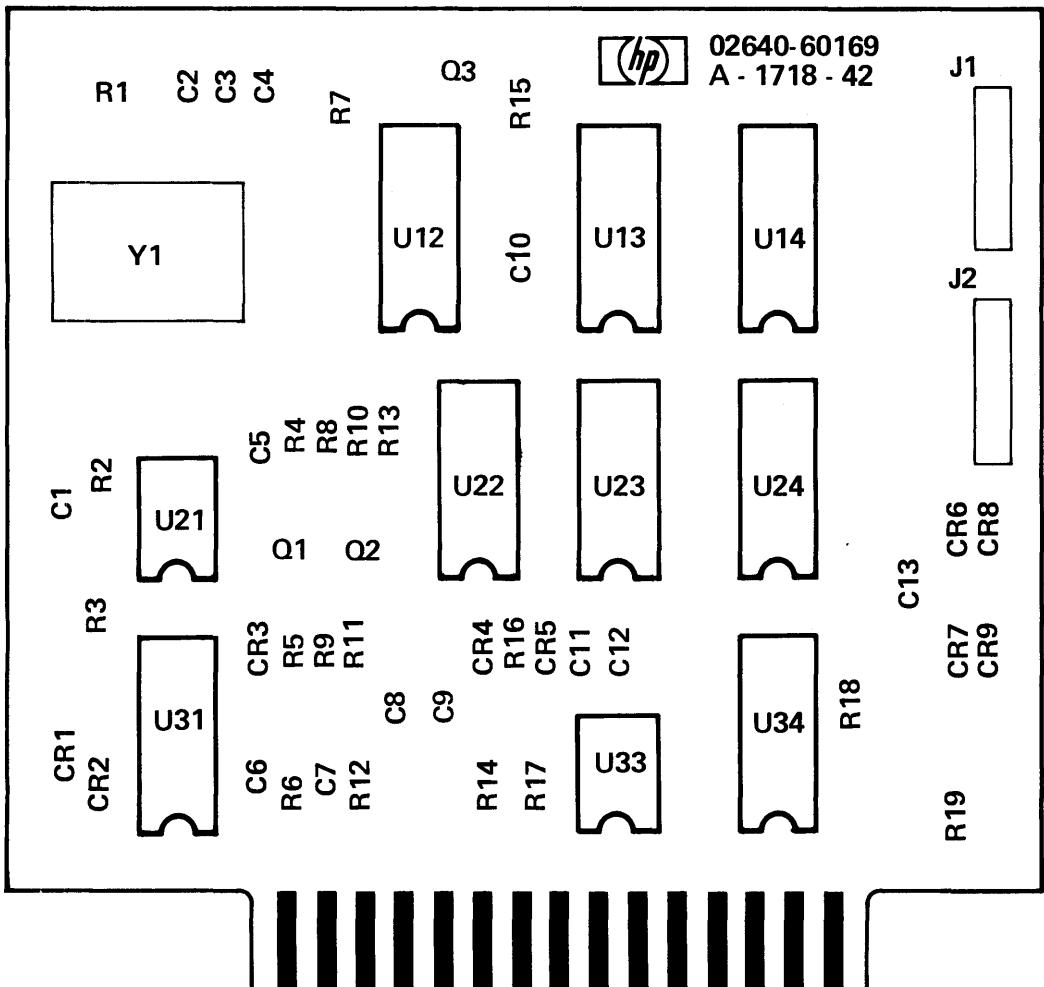


Figure 6
 Power Supply Control PCA Component Location Diagram
 JAN-5-79
 13255-91203

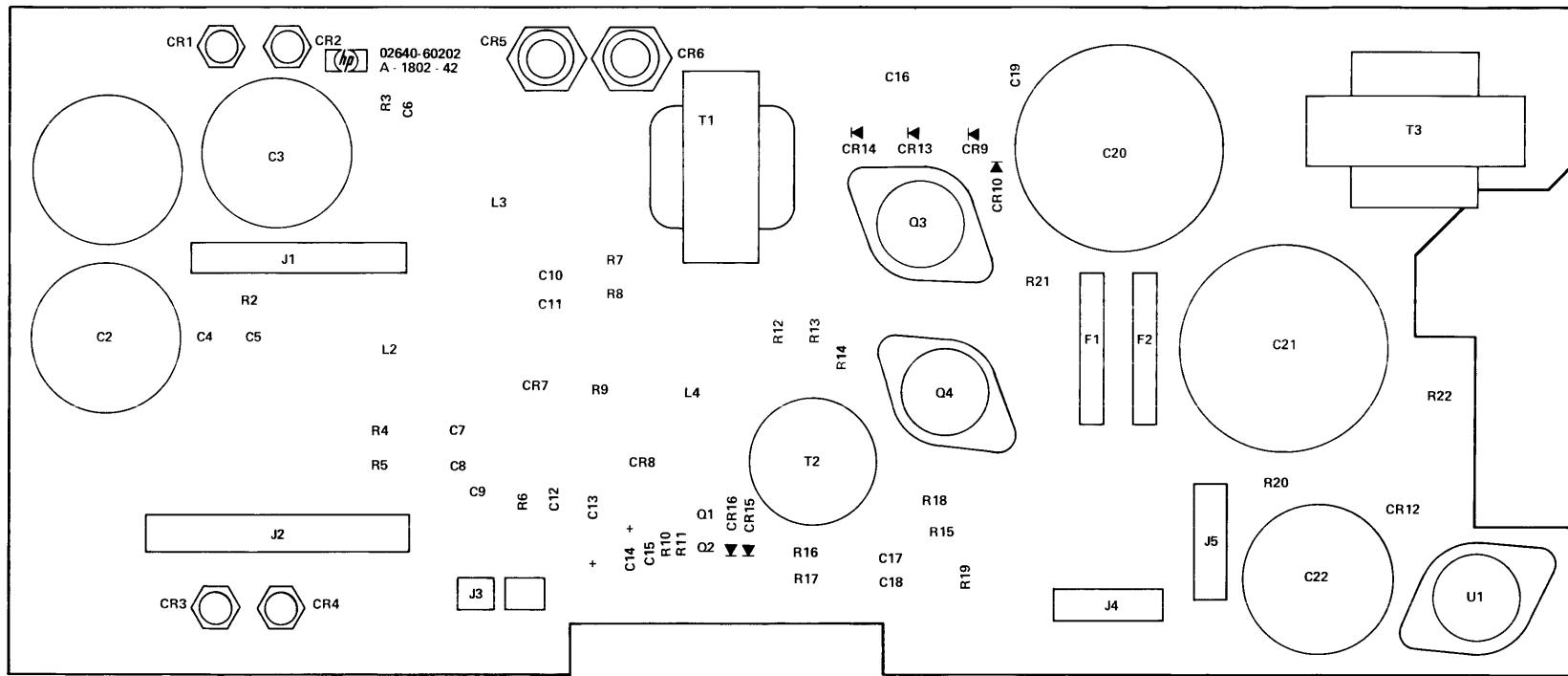


Figure 5
Power Supply PCA Component Location Diagram
JAN-5-79
13255-91203

Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	02640-60169	2	1	ASSEMBLY, POWER SUPPLY CONTROL	28480	02640-60169
C1	0180-0228	6	1	CAPACITOR-FXD 22UF +/-10% 15VDC TA	56289	1500226X901582
C2	0160-2055	9	4	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C3	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C4	0160-3533	0	1	CAPACITOR-FXD 470PF +/-5% 300VDC MICA	28480	0160-3533
C5	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C6	0140-0198	5	1	CAPACITOR-FXD 200PF +/-5% 300VDC MICA	72136	DM15F201J0300WV1CR
C7	0150-0121	5	2	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C8	0180-0374	3	2	CAPACITOR-FXD 10UF +/-10% 20VDC TA	56289	1500106X902082
C9	0180-0374	3	1	CAPACITOR-FXD 10UF +/-10% 20VDC TA	56289	1500106X902082
C10	0150-0121	5	1	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C11	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C12	0160-0938	3	1	CAPACITOR-FXD 1000PF +/-5% 100VDC MICA	28480	0160-0938
C13	0180-2145	0	1	CAPACITOR-FXD 120UF +/-10% 10VDC TA	56289	150D127X9010R2
CR1	1902-3155	7	1	DIODE-ZNR 9.53V 2A DO-7 PD=.4W TC=+.05%	28480	1902-3155
CR2	1901-0040	1	7	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR3	1902-0041	4	1	DIODE-ZNR 5.11V 5A DO-7 PD=.4W TC=-.009%	28480	1902-0041
CR4	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR5	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR6	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR7	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR8	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR9	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
J1	1251-3873	5	2	CONNECTOR 4-PIN M POST TYPE	28480	1251-3873
J2	1251-3873	5	2	CONNECTOR 4-PIN M POST TYPE	28480	1251-3873
L1	9140-0142	8	1	COIL-MLD 2.2UH 10X Q#32 .095DX.25LG-NOM	28480	9140-0142
Q1	1854-0467	5	2	TRANSISTOR NPN 2N4401 SI TO-92 PD=310MW	04713	2N4401
Q2	1854-0467	5	2	TRANSISTOR NPN 2N4401 SI TO-92 PD=310MW	04713	2N4401
Q3	1853-0015	7	1	TRANSISTOR PNP SI PD=200MW FT=500MHZ	28480	1853-0015
R1	2100-3352	7	1	RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN	28480	2100-3352
R2	0698-3155	1	2	RESISTOR 4.64K 1% .125W F TC=0/+100	24546	C4=1/8-T0=4641-F
R3	0757-1094	9	2	RESISTOR 1.47K 1% .125W F TC=0/+100	24546	C4=1/8-T0=1471-F
R4	0683-2235	5	1	RESISTOR 22K 5% .25W FC TC=-400/+800	01121	CB2235
R5	0683-4715	0	1	RESISTOR 470 5% .25W FC TC=-400/+600	01121	CB4715
R6	0683-1045	3	2	RESISTOR 100K 5% .25W FC TC=-400/+800	01121	CB1045
R7	0683-1025	9	4	RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R8	0683-1025	9	1	RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R9	0698-3150	6	1	RESISTOR 2.37K 1% .125W F TC=0/+100	24546	C4=1/8-T0=2371-F
R10	0683-1025	9	1	RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R11	0683-1045	3	2	RESISTOR 100K 5% .25W FC TC=-400/+800	01121	CB1045
R12	0683-2225	3	2	RESISTOR 2.2K 5% .25W FC TC=-400/+700	01121	CB2225
R13	0683-1025	9	1	RESISTOR 1K 5% .25W FC TC=-400/+600	01121	CB1025
R14	0683-1035	1	1	RESISTOR 10K 5% .25W FC TC=-400/+700	01121	CB1035
R15	0683-2215	1	1	RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R16	0698-3155	1	1	RESISTOR 4.64K 1% .125W F TC=0/+100	24546	C4=1/8-T0=4641-F
R17	0683-3325	6	1	RESISTOR 3.3K 5% .25W FC TC=-400/+700	01121	CB3325
R18	0683-2225	3	1	RESISTOR 2.2K 5% .25W FC TC=-400/+700	01121	CB2225
R19	0757-1094	9	1	RESISTOR 1.47K 1% .125W F TC=0/+100	24546	C4=1/8-T0=1471-F
U12	1820-0578	8	1	IC GATE ECL OR-NOR DUAL 2-INP	04713	MC1024P
U13	1820-0055	6	2	IC CNTR TTL DECD SYNCRO POS-EDGE=TRIG	01295	SN7490AN
U14	1820-1287	8	1	IC BFR TTL LS NAND QUAD 2-INP	01295	SN74LS17N
U21	1826-0373	3	2	IC TIMER TTL MONO/ASTBL	27014	LM555CN
U22	1820-1056	9	1	IC SCHMITT-TRIG TTL NAND QUAD 2-INP	01295	SN74132N
U23	1820-0055	6	1	IC CNTR TTL DECD SYNCRO POS-EDGE=TRIG	01295	SN7490AN
U24	1820-0907	7	1	IC GATE TTL NAND TPL 3-INP	01295	SN7412N
U31	1826-0049	0	1	IC V RGLTR 14-DIP-C	07263	T23DC
U33	1826-0373	3	1	IC TIMER TTL MONO/ASTBL	27014	LM555CN
U34	1820-1112	8	1	IC FF TTL LS D-TYPE POS-EDGE=TRIG	01295	SN74LS74N
Y1	0410-0585	7	1	CRYSTAL-QUARTZ 4.915 MHZ +/-0.01%; SER	28480	0410-0585
	1200-0770	8	1	MISCELLANEOUS PARTS		
				SOCKET-XTAL 2-CONT HC=6/U DIP-SLDR	28480	1200-0770

Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	02640-60202	4	1	ASSEMBLY, POWER SUPPLY	28480	02640-60202
C1	0180-2326	9	2	CAPACITOR-FXD .01UF+75-10% 15VDC AL	90201	CG8103UD158D3L
C2	0180-2326	9	2	CAPACITOR-FXD .01UF+75-10% 15VDC AL	90201	CG8103UD158D3L
C3	0180-2290	6	2	CAPACITOR-FXD 2700UF+75-10% 25VDC AL	56289	36D272G025AA2A
C4	0160-2055	9	6	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C5	0160-2055	9	6	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C6	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C7	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C8	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C9	0160-2055	9	1	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C10	0150-0121	5	5	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C11	0150-0121	5	1	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C12	0160-3449	7	1	CAPACITOR-FXD 2000PF +-10% 250VDC CER	28480	0160-3449
C13	0180-0149	0	1	CAPACITOR-FXD 65UF+-10% 60VDC AL	28480	0180-0149
C14	0180-0393	6	1	CAPACITOR-FXD 39UF+-10% 10VDC TA	56289	150D396x901082
C15	0150-0121	5	1	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C16	0160-4242	0	1	CAPACITOR-FXD 4UF +-10% 200VDC MET+POLYC	28480	0160-4242
C17	0150-0121	5	1	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C18	0150-0121	5	1	CAPACITOR-FXD .1UF +80-20% 50VDC CER	28480	0150-0121
C19	0160-3456	6	1	CAPACITOR-FXD 1000PF +-10% 1KVDC CER	28480	0160-3456
C20	0180-0647	3	2	CAPACITOR-FXD 7100UF+75-10% 200VDC AL	28480	0180-0647
C21	0180-0647	3	1	CAPACITOR-FXD 7100UF+75-10% 200VDC AL	28480	0180-0647
C22	0180-2290	6	1	CAPACITOR-FXD 2700UF+75-10% 25VDC AL	56289	36D272G025AA2A
CR1	1902-1205	4	1	DIODE-ZNR IN2979RB 15V 5% DO-4 PD=10W	12954	IN2979RB
CR2	1902-1217	8	1	DIODE-ZNR 6.2V 5% DO-4 PD=10W TC=+.035%	28480	1902-1217
CR3	1902-0643	2	1	DIODE-ZNR IN2979B 15V 5% DO-4 PD=10W	28480	1902-0643
CR4	1902-0645	4	1	DIODE-ZNR IN2997RB 51V 5% DO-4 PD=10W	04713	IN2997RB
CR5	1901-0771	5	2	DIODE-PWR RECT 50V 30A 200NS DO-5	28480	1901-0771
CR6	1901-0771	5	1	DIODE-PWR RECT 50V 30A 200NS DO-5	28480	1901-0771
CR7	1906-0079	6	1	DIODE-FW BRDG 100V 10A	28480	1906-0079
CR8	1906-0051	4	1	DIODE-FW BRDG 100V 1A	28480	1906-0051
CR9	1901-1065	2	4	DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
CR10	1901-1065	2	1	DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
CR11	1906-0080	9	1	DIODE-FW BRDG 600V 10A	28480	1906-0080
CR12	1906-0021	8	1	DIODE-FW BRDG 100V 1A	28480	1906-0021
CR13	1901-1065	2	1	DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
CR14	1901-1065	2	1	DIODE-PWR RECT 1N4936 400V 1A 200NS	14936	1N4936
CR15	1901-0040	1	2	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
CR16	1901-0040	1	1	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
J1	1251-3197	6	1	CONNECTOR 12-PIN M POST TYPE	28480	1251-3197
J2	1251-2035	9	1	CONNECTOR-PC EDGE 15-CONT/ROW 2-ROWS	28480	1251-2035
J3	1251-3618	6	2	CONNECTOR 2-PIN M POST TYPE	28480	1251-3618
J4	1251-3837	1	2	CONNECTOR 4-PIN M UTILITY	28480	1251-3837
J5	1251-3837	1	1	CONNECTOR 4-PIN M UTILITY	28480	1251-3837
J7	1251-3618	6	1	CONNECTOR 2-PIN M POST TYPE	28480	1251-3618
L1	9100-3906	4	2	COIL-FIXED	28480	9100-3906
L2	9100-3906	4	1	COIL-FIXED	28480	9100-3906
L3	9100-3905	3	1	COIL-FIXED .010 OHMS MAX; 100 UH MIN AT	28480	9100-3905
L4	9100-3926	8	1	COIL 1.45LG-NOM	28480	9100-3926
Q1	1854-0467	5	2	TRANSISTOR NPN 2N4401 SI TO-92 PD=310MW	04713	2N4401
Q2	1854-0467	5	2	TRANSISTOR NPN 2N4401 SI TO-92 PD=310MW	04713	2N4401
Q3	1854-0624	6	2	TRANSISTOR NPN 2N6308 SI TO-3 PD=125W	04713	2N6308
Q4	1854-0624	6	2	TRANSISTOR NPN 2N6308 SI TO-3 PD=125W	04713	2N6308
R1	0692-1015	6	3	RESISTOR 100 5% 2W CC TC=0+529	01121	H81015
R2	0692-1015	6	1	RESISTOR 100 5% 2W CC TC=0+529	01121	H81015
R3	0683-2215	1	1	RESISTOR 220 5% .25W FC TC=-400/+600	01121	CB2215
R4	0690-1801	4	2	RESISTOR 18 10% 1W CC TC=0+412	01121	GB1801
R5	0690-1801	4	2	RESISTOR 18 10% 1W CC TC=0+412	01121	GB1801
R6	0692-1015	6	1	RESISTOR 100 5% 2W CC TC=0+529	01121	H81015
R7	0689-0275	1	4	RESISTOR 2.7 5% 1W CC TC=0+412	01121	GB27G5
R8	0689-0275	1	1	RESISTOR 2.7 5% 1W CC TC=0+412	01121	GB27G5
R9	0683-1035	1	1	RESISTOR 10K 5% .25W FC TC=-400/+700	01121	CB1035
R10	0683-3315	4	2	RESISTOR 330 5% .25W FC TC=-400/+600	01121	CB3315
R11	0683-3315	4	1	RESISTOR 330 5% .25W FC TC=-400/+600	01121	CB3315
R12	0689-0275	1	1	RESISTOR 2.7 5% 1W CC TC=0+412	01121	GB27G5
R13	0689-0275	1	1	RESISTOR 2.7 5% 1W CC TC=0+412	01121	GB27G5
R14	0683-4705	8	2	RESISTOR 47 5% .25W FC TC=-400/+500	01121	CB4705
R15	0683-4705	8	2	RESISTOR 47 5% .25W FC TC=-400/+500	01121	CB4705
R16	0689-2705	6	2	RESISTOR 27 5% 1W CC TC=0+412	01121	GB2705
R17	0689-2705	6	2	RESISTOR 27 5% 1W CC TC=0+412	01121	GB2705
R18	0693-2231	2	2	RESISTOR 22K 10% 2W CC TC=0+765	01121	H82231
R19	0837-0135	7	2	THERMISTOR	28480	0837-0135
R20	0837-0135	7	2	THERMISTOR	28480	0837-0135

Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
R21	0692-4715	9	1	RESISTOR 470 5% 2W CC TC#0+529	01121	HR4715
R22	0693-2231	2	1	RESISTOR 22K 10% 2W CC TC#0+765	01121	HB2231
T1	9100-3909	7	1	TRANSFORMER SWITCHING, 3CB OR EQUIVALENT	28480	9100-3909
T2	9100-3908	6	1	TRANSFORMER-PULSE 3B7 OR EQUIVALENT	28480	9100-3908
T3	9100-3907	5	1	TRANSFORMER, POWER	28480	9100-3907
U1	1820-0430	1	1	IC 309 V RGLTR TO=3	07263	LM309K
				MISCELLANEOUS PARTS		
0360-1264	4	1	TERMINAL-BARRIER BLOCK .250IN WIDE TAB	28480	0360-1264	
0362-0328	3	1	TERMINAL-CRIMP R-TNG #6 16-14-AWG BLU	28480	0362-0328	
0380-0383	8	6	STANDOFF-RVT-ON .125-IN-LG 6-32THD	00000	ORDER BY DESCRIPTION	
0380-0455	5	1	SPACER-RND 1-IN-LG .135-IN-ID .25-IN-DD	28480	0380-0455	
0400-0082	8		GROMMET-CHAN NCH .09-IN-GRV-WD	28480	0400-0082	
0890-0201	0		TUBING-FLEX .072-ID PVC .016-WALL	28480	0890-0201	
1205-0289	4	2	HEAT SINK TO-3-PKG	28480	1205-0289	
1251-4470	0	1	CONNECTOR-AC PWR CEE-22 MALE REC-FLG	28480	1251-4470	
1400-0126	2	1	CLAMP-CABLE .27-DIA .375-WD NYL	28480	1400-0126	
2110-0551	3	4	FUSEHOLDER-CLIP TYPE 15A 250V .250=FUSE	28480	2110-0551	
2110-0589	7	4	FUSEHOLDER-CLIP TYPE 6.3A 250V	28480	2110-0589	
2190-0008	3	7	WASHER=LK EXT T NO. 6 .141-IN-ID	28480	2190-0008	
2190-0011	8	2	WASHER=LK INTL T NO. 10 .195-IN-ID	28480	2190-0011	
2190-0027	6	2	WASHER=LK INTL T 1/4 IN .256-IN-ID	28480	2190-0027	
2200-0105	4	4	SCREW-MACH 4-40 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION	
2360-0111	0	3	SCREW-MACH 6-32 .188-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION	
2360-0115	4	3	SCREW-MACH 6-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION	
2360-0121	2		SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION	
2360-0192	7	1	SCREW-MACH 6-32 .25-IN-LG 100 DEG	00000	ORDER BY DESCRIPTION	
2360-0219	9	1	SCREW-MACH 6-32 1.375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION	
2420-0001	5	5	NUT=HEX-W/LKWR 6-32=THD .109-IN-THK	00000	ORDER BY DESCRIPTION	
2420-0003	7	4	NUT=HEX=DBL-CHAN 6-32=THD .094-IN-THK	00000	ORDER BY DESCRIPTION	
2680-0129	8	2	SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION	
2740-0003	5	4	NUT=HEX-W/LKWR 10-32=THD .125-IN-THK	00000	ORDER BY DESCRIPTION	
2950-0134	8	2	NUT=HEX=DBL-CHAN 1/4-28=THD .125-IN-THK	00000	ORDER BY DESCRIPTION	
3050-0227	3	3	WASHER=FL MTLC NO. 6 .149-IN-ID	28480	3050-0227	
3050-0247	7	2	WASHER=FL NM NO. 6 .141-IN-ID .375-IN-DD	28480	3050-0247	
3101-2122	0	1	SWITCH, ROCKER	28480	3101-2122	
6040-0239	9		LUBRICANT-GREASE SIL	05820	120	
7120-4369	5	1	LABEL, WARNING	28480	7120-4369	
8150-1542	4		WIRE, RED #22	28480	8150-1542	
8150-1547	9		WIRE, VIOLET #22	28480	8150-1547	
8150-1552	6		WIRE, WHITE/RED #22	28480	8150-1552	
8150-1557	1		WIRE, WHITE/VIOLET #22	28480	8150-1557	
8150-2660	9		WIRE WHITE/GRAY #18	28480	8150-2660	
8150-2919	1		WIRE, GREEN/YELLOW #18	28480	8150-2919	
8150-2920	4		WIRE, WHITE/BLACK/GRAY #18	28480	8150-2920	
8151-0010	1		WIRE, G BARE #16	28480	8151-0010	
5001-2808	9	2	HEAT SINK	28480	5001-2808	
5040-0170	6	2	GUIDE, PCA	28480	5040-0170	
02640-00060	6	1	FRONT PANEL	28480	02640-00060	
02640-00061	7	1	LEFT SIDE	28480	02640-00061	
02640-00062	8	1	REAR PANEL	28480	02640-00062	
02640-00063	9	1	RIGHT SIDE	28480	02640-00063	
02640-00070	8	1	MOUNTING BRACKET	28480	02640-00070	
02640-60213	7	1	LINE FILTER ASSEMBLY	28480	02640-60213	

Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	02640-60203	5	1	ASSEMBLY, POWER UNIT	28480	02640-60203
	0570-0605	0	1	SCREW, CAPTIVE	28480	0570-0605
	02640-00064	0	1	COVER	28480	02640-00064
	02640-60148	7	1	CABLE ASSEMBLY	28480	02640-60148
	02640-60169	2	1	POWER SUPPLY CONTROL ASSEMBLY	28480	02640-60169
	02640-60202	4	1	POWER SUPPLY ASSEMBLY	28480	02640-60202

Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	02640-60148	7	1	CABLE, POWER SUPPLY ASSEMBLY	28480	02640-60148
	0890-0029	0		TUBING-HS .187=D/.093=RCVD .02=WALL	28480	0890-0029
	0890-0732	2		TUBING-HS .063=D/.031=RCVD .017=WALL	28480	0890-0732
	1251-0627	1		POLARIZING KEY-POST CONN	28480	1251-0627
	1251-0670	4	6	CONTACT-CONN U/W-POST-TYPE FEM CRP	28480	1251-0670
	1251-3202	4	27	CONNECTOR 15-PIN F POST TYPE	28480	1251-3202
	1251-3537	8	1	CONNECTOR 10-PIN F POST TYPE	28480	1251-3537
	1400-0249	0	2	CABLE TIE .062=.625=DIA .091=WD NYL	28480	1400-0249
	A120-2294	2		CABLE, RF COAXIAL	28480	A120-2294
	A150-0672	9	3	WIRE 18AWG R 300V PVC 19X30 80C	28480	A150-0672
	A150-2829	2	3	WIRE 18AWG BK 300V PVC 19X30 80C	28480	A150-2829
	A150-2983	9		WIRE 18AWG W 300V PVC 19X30 80C	28480	A150-2983
	A150-3246	9	1	WIRE 18AWG W/R 300V PVC 19X30 80C	28480	A150-3246
	A150-3737	3		WIRE 18AWG W/V 300V PVC 19X30 80C	28480	A150-3737